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IS THERE A GEOECONOMIC NODE IN SOUTH AMERICA?

GEOGRAPHY, POLITICS AND BRAZIL'S ROLE IN REGIONAL ECONOMIC INTEGRATION

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Resumo

Algumas potências emergentes interligam as suas economias com as dos seus vizinhos, transformando-se em plataformas geoeconómicas das suas respetivas regiões. À primeira vista, o Brasil aparece como um exemplo típico deste fenómeno: é o principal parceiro comercial de vários dos seus vizinhos, grandes companhias públicas ou privadas como Petrobras e Vale realizam grandes investimentos na América do Sul, e o Banco Nacional de Desenvolvimento tem apoiado massivamente a expansão regional das firmas brasileiras. Porém, um olhar mais detalhado sobre a integração física da América do Sul e o papel do Brasil nela leva a conclusões menos definitivas. Mediante a análise de quatro dimensões de centralidade geoeconómica (nomeadamente a localização, distância e geografia física; a infraestrutura de transporte; o potencial de complementaridade económica e as estratégias políticas), este artigo mostra que uma maior integração económica regional é improvável e que as perspetivas de o Brasil se tornar um nodo geoconómico são escassas, especialmente para além do Cone Sul.

Palavras-chave: centralidade geoeconómica, integração económica regional, América do Sul, Brasil.

Abstract

Some emerging states tie the economies of their neighboring countries together; they have become geoeconomic nodes of their respective regions. At first glance, Brazil is a typical case for this phenomenon: it is the most important trading partner for several of its neighbors, giant public and private companies such as Petrobras and Vale have become major investors in South America, and the state-owned National Development Bank massively supports the regional expansion of Brazilian firms. Yet, a closer look at physical integration in South America and Brazil's economic role therein leads to more nuanced conclusions. By analyzing four dimensions of geoeconomic nodality, first location, distance and physical geography, second transport infrastructure, third economic complementarity and fourth political strategies, we show that regional economic integration is unlikely to progress much further and that Brazil's prospects as a geoeconomic node are dim, especially regarding its non-Southern Cone neighbors.

Key-words: geoeconomic node, regional economic integration, South America, Brazil.

Is there a Geoeconomic Node in South America? Geography, Politics and Brazil's Role in Regional Economic Integration

Introduction

Some emerging states tie the economies of their neighboring countries together; they have become geoeconomic nodes of their respective region. At first glance, it seems that Brazil is a typical case for this phenomenon. First, Brazil is by far the most important trading partner of Argentina, Bolivia and Paraguay, and closely so of Uruguay. The Andean countries and Venezuela are becoming more and more attractive for investment by Brazil's largest enterprises. Second, Brazil possesses a geographically central position in the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA). The vision that guides IIRSA is that highways and waterways will connect the Atlantic to the Pacific, crossing the Amazon Basin and the Andes. Pipelines for oil and natural gas shall link the growing Brazilian market to Argentina, Bolivia, Uruguay and Venezuela, and national electricity grids shall connect with each other. Third, the state-owned National Development Bank (BNDES) massively supports the regional expansion of Brazilian energy and construction firms through loans conceded to neighboring governments. In short, regional economic integration has been defined as a strategic goal for the Brazilian government.

Yet, a closer look at regional integration in South America and Brazil's economic role therein leads to more nuanced conclusions. We will show that distance and physical barriers hinder close economic ties between Brazil and its non-Southern Cone neighbors. Transregional transport infrastructure is deeply inadequate. IIRSA has, so far, remained a vision. What is more, the South American countries mostly export primary sector products to the cores of the global economy. Intraregional trade is not essential to them. For Brazil, regional markets are of minor relevance in comparison to overseas markets. Political obstacles to regional economic cooperation further reduce Brazil's geoeconomic nodality.

We define geoeconomic nodes as geographic cores of economic networks. The economic flows of all other units that are part of an according system are focused on the geoeconomic node. We operationalize this dependent variable by quantitative and qualitative data on intraregional trade and core-country investment in the region. Our analysis of Brazil's geoeconomic nodality is based on two essential sets of independent variables: geographical conditions and political strategies. To us, geographical conditions comprise nature and man-made structures in geographical space that cannot be altered in the short run. They provide constraints and opportunities. We address three categories of geographical conditions. First, location, distance and physical geography are the fundaments of geoeconomic nodality. Second, infrastructure for transport, including the transport of energy, is the main means of expanding the spatial scope of a geoeconomic node. Infrastructure for transport usually reflects physio-geographical conditions. Insufficient infrastructure limits geoeconomic nodality. Third, geoeconomic nodes will only come into existence if there is some sort of regional economic complementarity that allows for investment and trade between the node and its periphery. Recognizing that there is more to geoeconomic nodality than said geographical conditions, we argue that political strategies are essential because they may help to overcome constraints and to realize opportunities provided by geography. Apparently, this will not be the case if inadequate strategies are pursued. Bringing geographical conditions and political strategies together, we seek to answer the following question: How do geographical conditions, interacting with political strategies, shape Brazil's role as the geoeconomic node of South America?

In order to answer this question systematically, we firstly present a functionalist concept that allows us to distinguish forces that tie a region together and forces that tear a region apart. Secondly, we take a close look at the impact of location, distance and physical geography on Brazilian-South American relations. We thirdly elaborate on the present state of regional infrastructure. Fourthly, we analyze the economic complementarity of Brazil and its neighboring countries, which is part of the independent variable, and relate it to de facto existing economic ties among them, i.e.

the dependent variable. We fifthly explain that policies of the South American states weaken Brazil's geoeconomic nodality.

Analytical framework

More than 70 years ago, American geographer James examined Brazil from a functionalist perspective. He wanted to assess the probability of state failure given the poor geopolitical cohesion of South America's largest state. James (1939: 260-261) argued that the geographical clustering and division of the Brazilian population constituted a disunifying or "centrifugal" force. São Paulo was (and still is) separated from the Atlantic Ocean by coastal mountain ranges. Transport corridors on land hardly connected Brazil's most important city to other towns and the periphery of the country. At the same time, significant "centripetal" forces tied Brazil together (James 1939: 263-264): airplanes linked São Paulo to towns several thousand kilometers away and economic complementarity favored the union, with the other federal states being the natural market and resource supplier for São Paulo's industrial sector.[1]

Today, there appears to be a comparable question in area studies on South America. Some researchers argue that regional integration has come to a dead end. Burges (2005) refers to the low relevance of intraregional trade and argues that the region lacks a business sector that would be the driver of deep integration like in Europe. Malamud (2005, 2011) highlights that Brazil is not willing to contribute disproportionately to regional integration, and its neighbors are unwilling to follow it without ensuing compensation. Doctor (2012) argues that economic asymmetries and institutional deficits hamper deepening regionalism in the Common Market of the South (Mercosur). Malamud and Gardini (2012) even claim that regionalism has peaked and delivers diminishing returns. We could adapt James' concept in order to shed light on factors that have been neglected so far but help to understand why the present state of regional integration has been reached and why further progress is

[1] James (1939: 261-263, 265) also took into consideration ideational factors, e.g. nationalism, and the unifying effects of a functioning participatory democracy. We limit our investigation to material forces and then analyze how political strategies interact with them.

unlikely. The only conceptual difference is that we are interested in the cohesion of a continent, whereas James referred to a nation-state. As Scholvin and Draper (2012) demonstrate for the South African case, there are four analytical dimensions that matter for a geopolitical or geoeconomic study of a region presumably tied together by a state with a relatively large and advanced economy:

- Location, distance and physical geography are the most fundamental factors that tie a region together or tear it apart. We explain this regarding Brazil's central location in South America, the distance between its economic cores and the neighboring countries, and physical barriers, especially the Amazon River and the Andes.
- Infrastructure for transport, including the transfer of energy, helps to overcome distance and natural barriers. It is a major man-made, centripetal force. Numerous infrastructure projects are envisaged in the context of IIRSA. In theory, they hold the potential to tie the region closer to Brazil. The current state of infrastructure is, however, insufficient and weakens Brazil's role as a geoconomic node.
- Core zones of population and economic activity are non-natural, geographical forces that we expect to have an effect on the cohesion of a region, and thusly on Brazil's geoeconomic nodality, like location, distance and physical geography. This category is exemplified by Rio de Janeiro and São Paulo as industrial hubs that attract resources from the neighboring countries. At the same time, the South American economies are hardly complementary. The potential for intraregional trade is low.
- Political strategies condition the impact of the aforementioned factors. If Brazil were strongly committed to IIRSA as a tool of regional integration, many geographical barriers could be overcome. Yet, chances of increasing regional cohesion are foregone because policies in South America are inadequate or even aim at blocking the realization of geographically given opportunities.

These analytical dimensions were first applied by Cohen (1957), who stands in the tradition of Classical Geopolitics, an academic discipline that goes back to Mackinder (1890, 1904) and Spykman (1938). Mackinder, Spykman and other adherents of Classical Geopolitics sought to explain the politics and economics of their time by

location, distance and physical geography. We also examine the impact of locational and geographical factors (the independent variable) on economics or geoeconomic nodality (the dependent variable). Our approach furthermore ties up with Krugman's contributions to Economic Geography. In a nutshell, Krugman (1991a, 1991b, Krugman & Venables 1993) argues that proximity matters for international trade and that regional economic processes tend to favor polarization because of economies of scale and associated agglomeration, for example between a geoeconomic node and its periphery. The World Development Report 2009 confirms this hypothesis: location and "economic distance", meaning distance measured in costs instead of distance measured in kilometers, count (World Bank 2009: 74-81, 108-109). With regard to the special role of geoeconomic nodes, the experts of the World Bank (2009: 8-10, 260-285) introduce the term "leading area" and call for regional clustering around strong markets such as Brazil.

Modernizing Classical Geopolitics and adding a significant analytical component to the just mentioned contemporary physiocratic approaches, we bring in politics as an intervening variable. In other words, our approach is materialist and we seek to find out how political strategies interact with the fundament that geography provides. Deriving hypotheses from the aforementioned dimensions and the logic behind them, we argue that Brazil will tie the economies of regional countries to it and serve as the geoeconomic node of South America

- if Brazil's location, distance between major agglomerations and the regional physical geography favor economic interaction between Brazil and the other countries,
- if infrastructure for transport, including energy, links the other countries better to Brazil than to any alternative geoeconomic node,
- if there are complementary economic activities between Brazil and the other countries, and
- if the political strategies of the regional states aim at overcoming constraints and realizing opportunities provided by geography.

Our main sources are studies generated in the context of IIRSA, reports by the Economic Commission for Latin America and the Caribbean (ECLAC) and the Inter-American Development Bank (IADB), and World Bank data. Additionally, we resort to the World Factbook published by the Central Intelligence Agency (CIA), as well as information provided by the Energy Information Administration (EIA) and various Brazilian institutions, including the BNDES.

Location and physical geography

Brazil possesses a central location in South America: the geographical center of the continent is located at 15° southern latitude and 55° western longitude, close to Cuiabá in the Brazilian federal state of Mato Grosso. Brazil borders with all South American countries except for Chile and Ecuador. Because of this centrality, trade is not hampered by numerous border stops and there are few transit countries that can interfere. Scholars of geopolitics suggest that Brazil may easily access most of the continent's resources and obtain a dominant or nodal role in economic affairs because of its central location. Its neighboring states can hardly form an anti-Brazilian bloc because they are separated from one another by the emerging power (Kelly 1997: 53).

However, Brazil is a huge country. Recife in the Northeast is closer to Monrovia in Liberia (air distance: 3,100 kilometers) than to Quito in Ecuador (4,900 kilometers). Brazil's core zone of economic activity, i.e. the federal states of Rio de Janeiro and São Paulo, which account for 10.8 and 33.1 per cent of the Brazilian gross domestic product (GDP) (Instituto Brasileiro de Geografia e Estatística 2010), is located in the Southeast, far away from the Andean countries, Guyana, Suriname and Venezuela. While the 2,250 kilometers from São Paulo to Buenos Aires can be covered in 26 hours of driving time, going non-stop by car from São Paulo to Lima takes approximately 61 hours for almost 5,000 kilometers. A trip from São Paulo to Caracas means travelling more than 6,000 kilometers. The rather theoretical non-stop driving time will be more than 70 hours, provided that everything works smoothly. The dividing effect of distance is boosted by Brazil's sparsely populated north. The core zones of population and economic activity of Guyana, Suriname and Venezuela are located at the

Caribbean coast, far away from the Brazilian border and separated from it by mountain ranges, rivers and the rainforest. It is quite revealing that Internet-based navigation systems are unable to project a route from São Paulo to Caracas. The major cities of the Andean countries are cut off from Brazil as well – by the rainforest and the Andes. The insufficiency of land transport would not be much of a problem if Brazil and its northern and western neighbors were adequately connected by maritime transport. Yet, shipping lanes to the Andean countries are considerably long: the main ports of Brazil (Santos) and Peru (Callao) are almost 4,800 nautical miles apart – more than Santos and the harbor of Miami in the United States. Guayaquil, the main port of Ecuador, is farther away from Santos than Le Havre in France.

As Map 1 shows, Brazil's population and economic activity is concentrated on a narrow coastal strip. About 80 per cent of the population lives less than 200 kilometers away from the Atlantic Ocean. As said, the federal states of Rio de Janeiro and São Paulo account for 43.9 per cent of Brazil's GDP. Agglomerations in the hinterland, such as Brasília and Manaus, are rare exceptions. Since maritime transport is not hampered by physio-geographical barriers, it is plausible to assume that economic activity along the Brazilian coastal strip rather triggers maritime than continental links. Goods produced in Salvador da Bahia, Rio de Janeiro or Porto Alegre can easily be loaded on container vessels and shipped to Europe and North America. The same logic applies to imports. In fact, 50.4 percent of Brazil's intraregional trade was transported by ships between 2002 and 2012, if measured by its monetary value. If measured by weight, this figure increases to 63.2 percent.[2] In other words, Brazil is marked by what scholars of geopolitics call a maritime orientation, meaning that land transport to neighboring countries matters much less than maritime transport to faraway countries.

[2] Percentages calculated based on data retrieved from AliceWeb2 (http://aliceweb2.mdic.gov.br//index/home).

Map 1 – Population density in South America

These locational considerations are reinforced by South America's physical geography, which is depicted in Map 2. It boosts close links in the Southern Cone and separates Brazil from the Andean and Caribbean countries. South America consists of three major physio-geographical regions: lowlands that stretch from the Amazon Basin to Patagonia, the Andes, i.e. a high mountain range that abuts the Pacific Ocean, and the geologically much older and therefore eroded highlands of Guyana and Brazil, which tie up with the Atlantic and Caribbean coast. Once per year, the Amazon River rises more than nine meters, flooding the surrounding forests. Along its tributaries, these annual floods occur with a lower intensity (Robinson 1965: 13-14). This apparently hampers transport. Bridges are washed away. Harbors along the river have to deal with the annual floods. Even though the Amazon River is navigable from its mouth to Iquitos in Peru, i.e. on a distance of more than 1,200 kilometers, maritime transport is risky because of shifting sand banks. Apart from that, the hot and wet tropical climate in the Amazon Basin accounts for a dense, almost insurmountable vegetation. Transport corridors built through the rainforest are rapidly overgrown by vegetation. Heavy rains, which amount to 2,500 millimeters per year, i.e. three or four times as much as in the temperate zone, wash away earth and gravel roads, and cause significant damage to more robust infrastructure. At the same time, the Amazon area holds considerable untapped oil and natural gas resources: The Solimoes Basin is Brazil's third-largest reserve already today. Petrobras is further exploring the basin and intends to extract more high-quality light oil there. Processing of oil and natural gas in the region, for example in Manaus, may trigger growth in other sectors, especially in aluminium production because of the enormous bauxite resources of the Amazon Basin.

Map 2: Physio-geographical barriers in South America

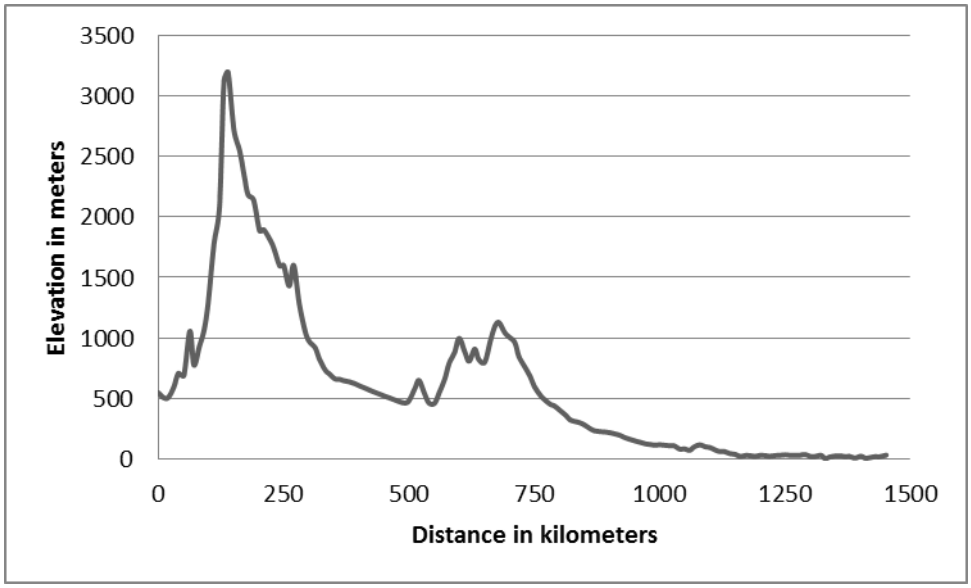
Southwestward of the Amazon Basin, there is a plateau landscape of pre-Cambrian origin at 300 to 500 meters above the sea level: the Brazilian Highlands. It is broken by low mountain systems and deep valleys. The terrain becomes very rough in the Brazilian federal state of Goiás. Railway lines and roads frequently traverse many kilometers to reach destinations only short linear distances apart. For example, a journey from Rio de Janeiro to Belo Horizonte took an hour by airplane but 14 by rail in the 1980s. Air distance between the two cities is 340 kilometers; the railway tracks extend to 640. The scheduled passenger service was stopped in 1990. In the east, the Brazilian Highlands ascend steep escarpments, which tie up with the coast. There are only two places where they rise in a single slope and thusly allow relatively easy movement from the coast to the hinterland: between Paranaguá and Curitiba, and between Santos and São Paulo. Given that the Brazilian Highlands are tilted north- and westward, rivers rising near their eastern rim, practically at sight of the Atlantic Ocean, flow inland for hundreds of kilometers before veering north or south. Many of them contain waterfalls (Kluck 1983: 84-87, 93). In sum, geomorphological features of Brazil's littoral cut major cities off from the hinterland. One may start wondering to what extent Brazil can achieve geoeconomic nodality, which implies that Brazil's metropolises are not only linked to the Brazilian hinterland but also to the neighboring countries.

Only the Paraguay-Paraná Basin and the Patagonian plateau offer a relative ease of movement that facilitates economic interaction. The lowlands of Paraguay-Paraná Basin are a low alluvial plain that slopes gently southward to the mouth of the Río de la Plata. They tie up with the Pampa, a plain inclined eastward and marked by frequent floods due to heavy rain (Robinson 1965: 12). East- and southward of the river Paraná, the landscape is slightly rugged. The Gran Chaco consists of flat jungle plains that are subject to annual flooding by rivers that cut across them. The southern Gran Chaco is a hot region mostly covered by thorny scrub (Osterling 1986: 90). In the north, the Brazilian Panatal forms a plain, swampy extension. With regard to transport, the entire region benefits from its navigable rivers and the absence of major mountain ranges that would hamper the construction of railway lines and roads. This explains the geoeconomic relevance of Buenos Aires since its foundation in the 1530s: it lies at the

natural entrance of the Río de la Plata Basin and ties maritime transport on rivers to maritime transport on the Atlantic Ocean (Osterling 1986: 90-91). Southward of the Pampa, the Patagonian plateau is dissected by rivers coming from the Andes, which do not constitute a significant obstacle to transport. Elevation increases from the sea level in a succession of abrupt terraces about 100 meters at a time. The Patagonian vegetation is mostly steppelike so that there are practically no natural obstacles to transport until one reaches the pre-Cordillera.

The Andes constitute the utmost barrier. In their northern and central reaches, they are relatively wide (up to 700 kilometers from east to west) and contain extensive plateaus and valleys, which host major cities such as Bogotá and La Paz. The southern Andes have been eroded by glaciers during the last ice age. In comparison to the central and northern Andes, they are lower. Valleys there are narrower. The east-to-west extension is only about 200 kilometers (Robinson 1965: 9-11). Even the southern Andes are a tremendous obstacle to transport though. The main crossover between Argentina and Chile is the Paso Internacional Los Libertadores. The route to the pass is a slow, gentle incline on the Argentinean side, which leads to a tunnel opened in 1980. On the Chilean side, the slope has a far higher grade so that the road consists of a long series of switchbacks to make the descent. Sometimes, the path has to be closed in winter, when snow blocks its ends and the threat of rockfall is considerable. Figure 1 shows an elevation profile from Santiago de Chile to Buenos Aires. It demonstrates the ease of movement in the lowland and the barrier posed by the Andes:

Figure 1: Elevation profile from Santiago de Chile to Buenos Aires



Source: Authors' compilation, route via Mendoza and Rosario

The Andes hold a considerable potential for energy generation. Peru's hydropower potential, for instance, is estimated to be 30,000 to 60,000 megawatts (Eglin 1981: 143). At the edges of the Andes, Bolivia possesses the fifth-largest natural gas reserves of the continent: 280 billion cubic meters. With a current production of about 14 billion cubic meters per year, it is the third-largest natural gas producer in South America, just behind Argentina and Venezuela (EIA 2012b: 6-7). 85 per cent of Argentina's proven conventional oil reserves are found in the south of the country: in the provinces of Chubut, Neuquén and Santa Cruz. The area also accounts for 72 per cent of Argentina's natural gas resources; Argentina is presently the largest natural gas producer in South America with almost 40 billion cubic meters per year. The Loma La Lata field in Neuquén province is expected to contain 741 million barrels of recoverable shale oil and about eleven trillion cubic meters of shale gas (EIA 2012a: 3, 4, 6-7). Brazil's proven natural gas reserves amount to 416 billion cubic meters. Although exploitation is growing only slowly, it already covers more than the domestic demand, indicating that Brazil is not dependent on the energy resources of its neighbors. Moreover, Brazil has the second-largest proven oil reserves in South

America. However, more than 90 percent of Brazil's oil production is offshore in deep water and consists of mostly heavy grades (EIA 2012c: 2-4, 6). Only Venezuela is better endowed with energy resources than Brazil. With 211 billion barrels, Venezuela possesses the second-largest proven oil resources in the world. Its proven natural gas reserves are the second-largest in the Western hemisphere: 5.5 trillion cubic meters (EIA 2012d: 2, 8). Colombia and Ecuador possess much less oil but are – by regional comparison – also considerable exporters. In the following section, we analyze whether transport infrastructure allows Brazil to cooperate with its neighbors on energy and to overcome geographical barriers to trade.

Transregional infrastructure

In the year 2000, the IADB (2000: 12-13) published a study that showed that intraregional trade in South America remained low because of insufficient transport infrastructure. According to a study published by the ECLAC three years later, inefficiencies in the transport sector accounted for an extra-cost of USD 170 per truck going from Argentina to Brazil or vice versa (Sánchez & Tomassian 2003: 5-6). Using routes other than the main trunks, added up to 40 percent to transport costs due to the poor quality of these roads. Border stops slowed down transport. For trucks going from Brazil to Argentina, they took 30 to 36 hours (Sánchez & Tomassian 2003: 49-51). Nevertheless, 37.9 percent of Brazil's regional exports between 2002 and 2012 were transported by road.[3] This affects practically only the countries of the Southern Cone, where roads are relatively dense and connect Brazil to its neighbors. In contrast to this, Brazil possesses almost 9,800 kilometers of borders with its Amazonian neighbors but just three percent of its trade with them is transported by road (Magalhães Lacerda 2009: 186).

In general, road density is low in South America. There are 19 kilometers of road per 100 square kilometers of land in Brazil, seven in Bolivia, eight in Paraguay and ten in Peru. The according value for the United States, which contains vast sparsely

[3] Measured by monetary value; percentage calculated based on data retrieved from AliceWeb2 (http://aliceweb2.mdic.gov.br//index/home).

populated areas like Brazil, is 67. Europe's largest economies reach values of about 180 (World Bank 2013). In Brazil, the tarred road network is relatively dense in the Northeast, Southeast and South but virtually vanishes westward of a line from Belém to Campo Grande. Only two major tarred roads interconnect the wider Amazon region: one goes from Cuiabá to Porto Velho to Manaus; another one links Porto Franco to Altamira to Porto Velho. Westward of a line from Manaus and Porto Velho, even sufficiently maintained earth and gravel roads become rare. Only one significant road connects Brazil to Venezuela – it goes from Boa Vista through western Bolívar Province to Ciudad Guayana. While the road network in Colombia's economic core zone, i.e. the Andean highland, is dense, there are no major roads in the Amazonian part of the country. Curvy mountain passes make crossing the Andes adventuresome. Two axes for intraregional road transport, partly in miserable condition, cross the Andes: The recently rehabilitated Interoceanic Highway goes from southern Peru via Rio Branco and Cuiabá to Brazil's Southeast. The Pan-American Highway[4] stretches from the Colombian-Panamanian border via Quito and Lima to Santiago de Chile, where it splits into one branch that ends in southern Chile and another one that goes to Buenos Aires and from there along the Atlantic coast to the southern edge of the continent. Map 3 shows the major roads in South America.

[4] The term "highway" may be misleading for readers used to transport infrastructure in the developed world. In South America, so called highways outside major cities are tarred two-lane roads, whose condition ranges from sufficient to miserable.

Map 3: Road infrastructure in South America

Transport by rail is even more difficult because railway gauges vary in South America: Bolivia, Brazil and Suriname mostly use the Metre Gauge, which is exactly one meter wide. Most tracks in Paraguay, Peru, Uruguay and Venezuela are built as Standard Gauge, i.e. 1.435 meters in width. In Argentina and Chile, the Indian Gauge of 1.676 meters predominates. Colombia's railway tracks are 0.917 meters wide (3-Feet-Gauge); the ones in Ecuador 1.067 (Cape Gauge). This situation is further complicated by the fact that the national railway networks in Argentina, Brazil, Chile, Paraguay, Peru and Suriname are not uniform – gauges vary within these countries. The reason for this is that railway lines in South America were initially built for the transport of primary sector goods to the coast, e.g. coffee in Brazil and copper in Chile. They were not meant to serve for transnational or even transregional transport. In the La Plata region, tracks were built with different gauges from the mid-19th century onward so that they could not be used by invading armies. Even the few existing transregional railway corridors hardly allow efficient transport. For example, the one from Buenos Aires to São Paulo is 300 kilometers longer than the route by road and contains different gauges. The tracks on the Brazilian side date back to the early 20th century. On the Argentinian side, there is only one railway bridge across the Paraná River. Transport from Buenos Aires to São Paulo by rail therefore takes twice as long as transport by road (Magalhães Lacerda 2009: 203-204). Colombia, Ecuador, Peru and Venezuela are not connected to each other by railway lines. Argentina and Chile do not use railway lines for their bilateral trade anymore because the one from Santiago de Chile to Mendoza, inaugurated in 1910, was cut by an avalanche in 1984 and has not been rehabilitated ever since (Magalhães Lacerda 2009: 187, 204).

Against this background, it is not surprising that transport by rail does not matter much in South America. In Brazil, 460 million tons of freight are transported by rail per year. In India, whose GDP is significantly smaller than the one of Brazil, the according figure is 922 million (International Union of Railway 2011: 2). Transport by rail is not only discouraged by the varying gauges but also by the low density of the railway network: There are about 25,000 kilometers of operated railway lines in Argentina, 30,000 in Brazil, 5,500 in Chile and 2,000 in Peru. France, which is much smaller than most South American countries, operates 30,000 kilometers of railway lines. The Indian railway net

reaches a length of 64,000 kilometers, i.e. more than the ones of Argentina and Brazil combined (International Union of Railways 2011: 1-2). Hence, only 1.2 percent of Brazil's regional exports between 2002 and 2012 were transported by rail.[5]

Seeing these obstacles to economic growth and regional integration, the South American ministers responsible for transport, energy and telecommunication agreed, at a meeting in Montevideo in 2000, to coordinate their policies and to foster physical integration in said sectors.[6] They identified twelve development axes for this purpose. In order to put the decisions taken in Montevideo into practice, IIRSA was founded in the same year. IIRSA is a loose intergovernmental initiative, a technical forum for cooperation on regional infrastructure, and concentrates on coordinating investment in projects that physically interlink the South American countries. Until 2014, the IIRSA portfolio will have reached USD 130 billion and a total of 544 projects. The development axes "Mercosur-Chile" and "Peru-Brazil-Bolivia" are by far the largest with an investment share of 39 and 22 percent respectively of the total IIRSA investment (Comité de Coordinación Técnica 2012: 14). The remaining axes cover the rest of South America, ranging from the southern Andes to the Highlands of Guyana. If all projects envisaged in the context of IIRSA were carried out, South America would be integrated closely by railway and road corridors, waterways and electricity transmission lines. Brazil would assume a nodel role in the resulting infrastructure network. However, the IADB (2008: i) criticizes that IIRSA does not possess criteria to rank projects with reference to their probable impact on physical integration across borders. 240 of IIRSA's initial 335 projects are limited to the national scale; only 95 constitute transnational ventures (IADB 2008: 10). Moreover, we think it is essential to bear in mind that IIRSA mostly exists on paper. What marks contemporary transport infrastructure in South America are all the aforementioned hurdles. They reduce Brazil's role as a geoeconomic node to the Southern Cone.

Comparing visions and reality in the energy sector confirms that even physical integration – and thusly Brazil's geoeconomic nodality – is to large extent rhetoric and

[5] Measured by monetary value; percentage calculated based on data retrieved from AliceWeb2 (http://aliceweb2.mdic.gov.br//index/home).

[6] The term "physical integration" – instead of "regional integration" – is meant to stress that according efforts are limited to building infrastructure for transport.

calls into question the perspectives of IIRSA. Two years after the Gasoducto del Sur, a giant network of gas pipelines that would have stretched across the continent, had firstly been promoted by Venezuelan president Hugo Chávez, José Sergio Gabrielli, president of Petrobras, said it would take 25 to 30 years for a project of this dimension to become operational (La Nación 2007). Existing infrastructure indicates that there is only limited bilateral trade in natural gas: Argentina and Bolivia have been connected by a natural gas pipeline since 1972. Its capacity is 200 million cubic feet per day (cf/d). A much larger pipeline has supplied a thermoelectric power station in Argentina since 2011. Another one leads from Entre Rios province to a power station in Uruguaiana in Brazil. It may be expanded to Porto Alegre. Various pipelines, built since the 1990s, connect Argentina to Chile. Argentina and Uruguay are linked by two pipelines (EIA 2012a: 8). Brazil's domestic pipeline network used to be fragmented. It has only recently been interconnected on the national level, which is expected to facilitate the exploitation of untapped resources in the Amazon Basin (EIA 2012c: 7). The Bolivia-Brazil natural gas pipeline GASBOL connects Santa Cruz with Porto Alegre via São Paulo and reaches a capacity of 1.1 billion cf/d. It is described by Petrobras as Latin America's biggest and most important energy infrastructure project (EIA 2012b: 8). Beyond the Mercosur, the conditions for cross-border cooperation are less favorable. Venezuela is connected by a pipeline to Colombia, which presently reaches a flow of 80 to 150 million cf/d (EIA 2012d: 10).

Given the aforementioned locational and physio-geographical conditions, it is quite rational for some countries to neglect regional projects. The coastal location of the agglomerations of most South American countries favors the import of liquefied natural gas instead of building costly transregional pipelines. The Andean countries and Venezuela are cut off from Brazil. Most demonstratively, Colombia's oil exports are realized via the Caribbean port at Covenas and the Pacific port at Tumaco (EIA 2012e: 1, 3). Ecuador is connected to Tumaco by a pipeline. Like Colombia, it exports most of its oil to the United States and the Far East (EIA 2012f: 1, 5). Venezuela exports 40 percent of its oil to the nearby United States and 31 percent to the next-door Caribbean (EIA 2012d: 7).

South America's thermal and hydroelectrical resources are compatible in the sense that countries rich in natural gas could increase their generation of electricity whenever droughts limit the output of hydropower stations if they were sufficiently interlinked (OLADE 2003: 26). An integrated electricity grid would moreover allow the full exploitation of the region's hydropower potential in the Amazonian and Andean periphery, to meet the demand in agglomerations (OLADE 2003: 12). Ten years ago, experts of the Latin American Energy Organization (OLADE) argued that Argentina and Brazil realistically possessed a transfer potential of five gigawatts, which equals only four percent of Brazil's installed capacity. Argentina and Chile, and Brazil and Uruguay were expected to reach a transfer potential of 0.5 gigawatts. Between Colombia and Ecuador, and Ecuador and Peru, a transfer of 0.25 gigawatts was predicted (OLADE 2003: 21). In 2011, Paraguay exported 46,120 gigawatt-hours. Argentina imported 10,929 gigawatt-hours; Brazil 38,430. These figures were mostly due to their trilateral trade. Chile and Uruguay participated marginally in the Southern-Cone trade with imports of 732 and 477 gigawatt-hours respectively. Colombia and Ecuador traded about 1,295 gigawatt-hours bilaterally. Peru imported only six gigawatt-hours; Venezuela 249. Bolivia, Guyana and Suriname did not trade electricity. This discrepancy of Brazil's potential as a geoeconomic node and its reality is reinforced by economic features of the South American countries, which we address in the next section.

Economic Complementarity

There is some evidence for economic complementarity of Brazil and its neighbors but this complementarity is an uncertain perspective and not a concrete reality: Even a partial realization of IIRSA would already facilitate the further regional expansion of the Brazilian economy. For example, in the northern Andes, commodity chains are to be upgraded so that value addition to natural resources takes place in the region – presently, crude oil constitutes almost 60 percent of the exports of the five countries that participate in the axis "Andino" (IIRSA 2010a: 94-96). In the area defined by the axis "Capricornio", economic development may be triggered by soya production,

generation of electricity by hydropower and the promotion of metal industries linked to mining (IIRSA 2010b: 124). In the context of the axis "Interoceánico Central", agricultural (maize, soya, sugar cane) and mining (copper, gold, lithium and molybdenum) products are to be linked to industrialized processing (IIRSA 2010c: 189). Apparently, Brazil's comparatively strong enterprises, which are already present in the region, will possess a much better position to benefit from these IIRSA-induced dynamics than their regional and overseas rivals if they occur.

However, as already said and partly in contradiction to aforementioned arguments that speak for regional economic integration, Burges (2005: 440) argues that economic structures of the South American countries do not generate sufficient incentives for deep integration. He points out that most South American countries are marked by a monostructure of exports, which diminishes the potential for intraregional trade: At the beginning of this century, less than ten goods accounted for more than half of the exports of each South American country, except for Brazil. In Bolivia, Ecuador, Paraguay and Venezuela, this figure even reached more than 75 percent. As table 1 shows, the exports of South America's economies remain focused on usually one or two primary-sector products. Taking the concept of economic complementarity seriously, one has to ask whether Brazil needs any of the goods that the neighboring countries export and vice versa. Brazil's most important imports are machinery, electrical and transport equipment, chemical products, crude oil, automotive parts and electronics (CIA 2013). Thus, industrialized economies are interesting trading partners for Brazil. Only crude oil and chemical products, i.e. oil derivatives, can be supplied by some South American countries. The most important regional oil exporters, Colombia, Ecuador and Venezuela, are, however, among those countries whose location hampers trade with Brazil. Moreover, Brazil itself exports crude oil, which indicates that it possesses sufficient capacities to meet its demand domestically.

Some of Brazil's most important export products – transport equipment, iron ore, soybeans, footwear, coffee and cars – are imported by the neighboring countries, most prominently cars assembled in Brazil. Still, it appears that Brazil is undergoing deindustrialization of its foreign trade because of the boom of its primary-sector exports (Gaulard 2011: 172-173, 185-188). Although the contribution of the

manufacturing sector to the GDP has remained almost constant since the mid-1990s, the share of manufactured goods in Brazil's exports declined from 56 percent in 2005 to 40 percent in 2010, affecting all sorts of manufactured goods except for those of low technology. The share of primary commodities in Brazil's exports increased from 30 to 46 percent in the same period (Salama 2012: 242-243).

Table 1: The top two export products of the South American countries

Country	Top two export products	Share in total exports
Argentina	Animal feed	11%
	Vegetable oil/fat	10%
Bolivia	Natural gas	41%
	Base metal ore	17%
Brazil	Iron ore	9%
	Crude oil	7%
Chile	Copper	36%
	Copper ores	21%
Colombia	Crude petrol	25%
	Coal	12%
Ecuador	Crude petrol	57%
	Fruits/nuts	9%
Guyana	Gold	23%
	Aluminium ores	22%
Paraguay	Oil seeds	37%
	Beef	14%
Peru	Gold	18%
	Copper ores	16%
Suriname	Alumina	56%
	Gold	27%
Venezuela	Crude petrol	94%
	Aluminium	1%
Uruguay	Beef	20%
	Rice	7%

Source: World Bank 2010, data for 2009.

Going beyond economic complementarity and looking at de-facto economic interaction, i.e. Brazil's effective geoeconomic nodality, one gets a mixed picture. The regional activities of Petrobras, which is the major buyer of natural gas from Bolivia, are one of the few arguable examples of Brazilian geoeconomic nodality. Already in 2003, Petrobras acquired Argentina's largest oil company, Perez Companc Energía. The Brazilian giant realizes the main share of its international oil production in South America: 75 out of 148 million barrels per day in 2013; up from 19 out of 53 in 2000 but down from a peak of 123 out of 144 million in 2006. Petrobras' natural gas exploitation, which is almost exclusively South America, increased from 1.7 billion cubic meters per day in 2000 to 15.1 billion in 2013 (Petrobras 2013b). In the mid-2000s, Petrobras accounted for ten percent of Bolivia's GDP. It envisaged carrying out 15 percent of its total investment, meaning USD 7.5 billion, outside of Brazil (Flynn 2007: 18). In order to exploit oil fields at the lower Orinoco River, which are expected to contain about 45 billion barrels of heavy oil, Petrobras and Petróleos de Venezuela S.A. (PDVSA) have agreed to build a 230,000-barrels per day oil refinery in the Brazilian federal state of Pernambuco. However, the project became stuck when PDVSA failed to provide sufficient guaranties for a BNDES credit that would allow it to meet its 40-percent contribution to the required investment (El Universal 2011).

A survey of Brazil's largest transnational companies reveals that each of the most internationalized among them, e.g. Banco do Brasil, Odebrecht and Vale, is present in several but not all South American countries, i.e. about five to eight. These enterprises are also active in numerous Asian, European and, to a lesser extent, African countries. Moderately internationalized, large companies appear to have a focus on South America: eight of the 13 foreign countries in which Petrobras operates are South American; in the case of the construction company Tigre even eight out of nine. If counted as mere physical presence abroad, meaning that the profitability and volume of business activities is disregarded, South America accounts for 31 percent of the foreign activities of Brazil's largest transnational companies, significantly more than Europe (21 percent) and Asia (17 percent) (Fundação Dom Cambral 2011: 13-15, 17). These figures do, however, not mean that Brazilian companies dominate the region.

They indicate that South America plays an important role for firms from Brazil, obviously within the limits of lower and upper middle-income countries. What is more, overseas companies appear to use Brazil as a springboard into the Mercosur (Sarti & Laplane 2002: 83-84, Hiratuka & de Negri 2003).

Brazilian investment in South America is mostly market and resource seeking, meaning that Brazilian enterprises establish branch plant operations in a neighboring country in order to circumvent its market access restrictions or to acquire resources abroad and use them domestically. Efficiency and strategic asset seeking, which would result in sophisticated regional commodity chains, remain marginal (ECLAC 2006: 15-16). In particular during Argentina's economic crisis in 2001, Brazilian enterprises, supported by the BNDES, bought many Argentinian companies. This way, they gained access to the market and resources of the neighboring country without creating regional commodity chains (Burges 2005: 448). Recent company takeovers reflect this pattern: In 2009, Petrobras bought shares of Esso Chile Petrolera, worth USD 400 million. Vale purchased Cementos Argos SA-Coal Mine in Colombia for USD 373 million (de Abreu Campanario 2012: 14). The lack of efficiency-seeking investment presumably results from the low level of overseas trade in higher value-added goods and services, meaning that there is no need to increase global competitiveness by exploiting regional comparative advantages. It appears to confirm Burges's (2005: 446) argument that commodity chains in South America are hardly integrated across national borders.

In addition to qualifying Brazil's role as a geoeconomic node as done in the previous paragraphs, it has to be spatially delineated quite narrowly. Basic data on foreign trade confirms what location and physical geography suggest: As table 2 shows, Brazil is an important export and import partner for the countries of the Southern Cone, except for Chile. The Andean countries and Brazil's northern neighbors are economically much closer to the United States.

Table 2: Major trading partners of the South American countries

Country	Export partners	Import partners
Argentina	1. Brazil 21.6% 2. China 7.3%	1. Brazil 33.2% 2. USA 14.4%
Bolivia	1. Brazil 41.8% 2. USA 12.2%	1. Chile 23.5% 2. Brazil 23.0%
Chile	1. China 22.8% 4. Brazil 5.5%	1. USA 20.1% 3. Brazil 8.3%
Colombia	1. USA 38.0% -	1. USA 25.0% 5. Brazil 5.0%
Ecuador	1. USA 37.8% -	1. USA 26.7% 6. Brazil 4.3%
Guyana	1. Canada 29.0% -	1. USA 21.3% -
Paraguay	1. Uruguay 15.0% 2. Brazil 11.4%	1. Brazil 27.5% 2. China 16.9%
Peru	1. China 18.3% -	1. USA 24.5% 3. Brazil 6.7%
Suriname	1. USA 23.9% -	1. USA 26.1% 7. Brazil 4.4%
Venezuela	1. USA 40.2% -	1. USA 28.6% 3. Brazil 10.6%
Uruguay	1. Brazil 19.1% 2. China 14.2%	1. Brazil 16.3% 2. China 15.0%

Source: CIA 2013, data for 2011 and 2012.

An econometric analysis by the International Monetary Fund confirms that the dependence on the Brazilian economy varies strongly in South America: 16 percent of Paraguay's GDP variance during recession is due to effects from Brazil. In the case of Argentina, this figure reaches ten percent. It is still significant in Uruguay with six percent; so it is in Bolivia and Chile with five percent each. Colombia, Ecuador and

Venezuela are hardly exposed to Brazil. Peru is, for unknown reasons, much more affected by Brazilian spill-overs than other Andean countries (Adler/Sosa 2012: 9-11, 13). Moreover, the exports of South America countries contract sharply, by an average of 20 percent, during recession in Brazil. The impact of global recessions on South America appears to be amplified by Brazil because South American exports to Brazil contract even more sharply than exports to the rest of the world during times of global recession. Both trends are more pronounced for the Southern Cone than for the rest of South America (Adler/Sosa 2012: 7-8).

When Burges published his critical article on regional integration, the subcontinent appeared to be pivotal for manufactured exports. In 2001, slightly more than 40 percent of Argentina's exports to South America were manufactured goods, compared to 30 percent of its global trade. The according percentages were 80 and 50 for Brazil; about 35 and ten for Venezuela. The gap was even wider in the cases of Chile, Colombia and Peru (Burges 2005: 442). Manufactured exports to South America constituted only about one to three percent of the GDP of the South American countries throughout the 1990s (Burges 2005: 444). This indicates that the economic relevance of the continent was low in comparison to global markets, where the South American countries sold their primary-sector goods. Today, intraregional trade still accounts for a marginal share of the GDP of most South American countries, as the second row of Table 3 summarizes. The largest regional economies export mainly secondary-sector products to South America, which constitute significantly smaller shares of their global exports. Bolivia and, to a lesser extent, Paraguay constitute exceptions because of their highly export-oriented and regionally embedded resource extraction. With regard to Brazil's geoeconomic nodality, it is particularly revealing that only 1.9 percent of Brazil's GDP results from intraregional trade, meaning that the region hardly matters to the Brazilian economy in quantitative terms. Considering the third row of Table 3, it appears that South America is somewhat relevant for Brazil because it can sell its globally uncompetitive manufactured goods there.

Table 3: Relevance of intraregional trade for the South American economies[7]

Country	Exports to South America as share of GDP	Secondary-sector exports as share of exports to South America	Secondary-sector exports as share of exports to the world
Argentina	6.8%	55.4%	36.7%
Bolivia	19.7%	3.3%	14.5%
Brazil	1.9%	74.7%	35.9%
Chile	3.9%	63.5%	52.8%
Colombia	2.5%	55.4%	22.5%
Ecuador	7.7%	25.9%	*insufficient data*
Guyana	3.2%	5.0%	*insufficient data*
Paraguay	13.8%	13.9%	11.3%
Peru	3.3%	57.1%	42.7%
Suriname	*insufficient data*	*insufficient data*	*insufficient data*
Venezuela	*insufficient data*	*insufficient data*	*insufficient data*
Uruguay	6.4%	47.2%	29.2%

Source: IADB 2013, data for 2011.

Further indicators boost the argument that the entire region is, at least in quantitative terms, of low economic relevance to Brazil: Brazil's most important trading partners are China (share of exports: 17.0 percent, imports: 14.5 percent) and the United States (exports: 10.8 percent, imports: 15.1 percent). Argentina is the third-most important trading partner with a share of 7.5 percent of Brazil's exports and imports. It is followed by Germany, Japan, the Netherlands and South Korea, not by regional states (CIA 2013). As we will show now, politics creates further hurdles for Brazil's role as a geoeconomic node.

[7] Comparing tables 1 and 3 reveals some inaccuracy, as data from the IADB suggests a lower relevance of primary-sector exports than data from the World Bank.

Political strategies

Brazil's foreign policy has for a long time been influenced by geography. Its push toward the west constitutes a historical pattern of expansion, coined Brazil's "manifest destiny" by the American geographer Kelly (1997: 51-52). Similar to the United States in the 19th century, Brazil's geopolitics has been marked by a defensive Atlantic frontier and an active western frontier. Today, the active western frontier is not about securing territorial claims against neighboring states. It aims at the integration of the Amazon area, i.e. Brazilian territory, into the Brazilian economy, which requires, first of all, transport infrastructure, and access to the Pacific Ocean in order to connect Brazil with the emerging Far Eastern markets.

In spite of a clear priority of domestic projects, in particular the development of untapped resources in the Amazon area, the Brazilian government supports the expansion of Brazilian enterprises into South America. Inaugurated in 1952 to finance the state-led drive toward industrialization, the BNDES constitutes the main source of long-term capital on the domestic market. It is subordinated to the Ministry of Development, Industry and Foreign Trade. When Lula da Silva came into office, development-oriented economists affiliated with the Workers' Party (PT) took the lead of the bank. They began to advance industrial policies. During the Lula presidency, the BNDES more than doubled its investment portfolio (Santana 2011: 138). Since then, the bank has used its financial capacities to boost the regional expansion of the Brazilian economy. For instance, the bus rapid transit system in Colombia's capital Bogotá was significantly enlarged in 2011. Supported by the BNDES, Brazilian companies provided 295 buses. The bank declared that its support was meant to strengthen the position of Brazilian automotive industries on the South American market (BNDES 2012: 157).

A key means to boost the regional standing of Brazilian companies is the scheme "BNDES Finance and Enterprises". It consists of credit lines that support, among other things, the internationalization of small and medium enterprises, are directed at specific sectors including energy and transport, and facilitate the import of capital

goods in order to modernize the Brazilian economy. Credits for the projects carried out abroad by Brazilian enterprises, covering up to 60 percent of the total costs, are granted under the condition that these projects contribute to the economic and social development of Brazil (BNDES 2013a). Given that Brazilian construction firms such as Odebrecht receive credits for building infrastructure in South America, the BNDES practically finances, within the aforementioned and considerable limits, the construction of a business environment that other Brazilian enterprises need for their regional expansion. The "BNDES Exim" scheme comprises various credit lines that ease Brazilian exports (BNDES 2013b). It dates back to 1991, when the bank started providing credits for capital goods sold to Latin American countries. Since 2011, it has given Brazilian exporters the proceeds for high value-added industrial sales in Latin America up front. The BNDES is presently able to grant credits of USD 625 million to eleven foreign banks (BNDES 2012: 156), which then provide loans to foreign companies that purchase Brazilian goods; it also provides open credit lines to states that are certain to spend these credits on Brazilian products. For instance, Argentina received credits of USD 1.2 billion from 2005 to 2009, which practically went into the pockets of Brazilian construction firms (Hochstetler & Montero forthcoming). What is more, the BNDES (2013c) has opened an office in Montevideo in 2009. Its objective is to foster ties with the Mercosur and the Latin American Integration Association (ALADI). Incentives for mergers of domestic firms offered by the BNDES, most notably in the past five years, have indirectly helped to promote the internationalization of Brazilian companies because of economies of scale that make them more competitive (de Abreu Campanarion et al. 2012: 7). With regard to the last mentioned issue, there is, however, not a preference for regional over global expansion. Most researchers see the BNDES as an agency of the globalization of Brazilian enterprises (Ramsey & Almeida 2010), not of regional integration.

Yet, regional integration advances much more slowly than previously envisaged. The BNDES published studies on monetary integration between Argentina and Brazil at the beginning of this century (e.g. Giambiagi 2001) but no progress has been made since then. It rather appears that the topic has vanished from the debate. A major obstacle to Brazilian investment in South America is double taxation. Until today, the only South

American states that have signed agreements to avoid double taxation with Brazil are Argentina, Chile, Ecuador and Peru. In addition to this, Brazilian investment in its neighboring countries is hampered by fluctuating exchange rates. During the last five years, the exchange rate of the Brazilian Real to the Argentinian Peso fluctuated between 1:1.39 and 1:2.66. One Brazilian Real was officially worth 0.89 Venezuelan Bolívares in January 2009 but 3.19 in February 2013. In winter 2008/2009, the value of the Bolivian Boliviano jumped from 0.22 to 0.34 Reais. The failure of Brazilian giant Vale to realize a scheduled project for two dams in Argentina's Santa Cruz province exemplifies that fluctuating exchange rates are worsened by discrepancies between the official and de-facto value of some regional currencies: Vale was unwilling to bring US Dollars at 5.20 Pesos (official rate), which would have been worth 9.80 Pesos (de-facto rate) (MercoPress 2013).

What is more, some regional states pursue policies on their resources that are counterproductive to regional cooperation. The most prominent case in this regard is Bolivia. In 2010, 68 percent of Bolivia's natural gas output, i.e. 80 percent of its natural gas exports, went to Brazil (EIA 2012b: 6-7, 9). The Bolivian natural gas, pumped through a pipeline from the Santa Cruz area to São Paulo, is vital to the economy of Brazil's economic heartland. The Bolivian-Brazilian natural gas trade would be a perfect example for economic relations of the regional core with the regional periphery, had the Bolivian government not forced Petrobras to re-negotiate its long-term contract in the course of the re-nationalization of its hydrocarbon resources, making Petrobras pay considerably higher royalties. Since then, the Morales government has re-negotiated contracts with other foreign firms and nationalized Bolivia's partially privatized companies Andina, Chaco and Transredes. Bolivia is not the only case that indicates that regional cooperation on essential economic assets is risky. Argentina used to be an exporter of oil and natural gas. Yet, its oil production peaked in the late 1990s and has declined to slightly less than 800,000 barrels per day. Argentina's natural gas reserves shrank by 50 per cent from 2002 to 2012. Insufficient investment and frequent strikes in the oil and natural gas sector further hamper production. At the same time, domestic oil consumption has been growing and reaches almost 700,000 barrels per day now. Natural gas consumption already surpassed domestic production

in 2008. Since then, Argentina has experienced heavy wintertime shortages (EIA 2012a: 2, 5-6). The government of Nestor Kirchner therefore imposed export restrictions, sometimes modifying them within a few days.

Given the apparent insecurity involved in regional trade on energy resources, Petrobras has relatively reduced its commitment abroad. According to its business plan 2010-2014, 95 percent of its investment is to be realized in Brazil (Petrobras 2010: 1-2). In another business plan, Petrobras (2011: 4) specifies that imports of Bolivian natural gas will remain constant at 30 million cubic meters per day until 2020. Conventional domestic production is to increase from 55 to 102 million. Liquefied natural gas (from offshore sources) will surpass imports from Bolivia and reach 41 million already in 2015. With regard to future exploration and exploitation, Petrobras (2013a: 24) concentrates on offshore oil and natural gas resources in the Atlantic Ocean close to São Paulo. The share of pre-salt sources, i.e. hardly exploitable resources located below salt layers, is to increase from seven to 31 percent.[8] Chile, which relied on natural gas from Argentina in the early 2000s, has built liquefied-natural-gas terminals, which became operational in 2009. They import primarily from Trinidad and Tobago (Hester/Weintraub 2010: 30). Brazil has also invested in liquefied natural gas (EIA 2012c: 7), opening another path toward independence from regional energy supplies. In one sentence, geographically given chances for regional cooperation are foregone because of political decisions that do not reflect what would be rational from a purely economic perspective.[9]

The trouble about natural gas imports from Argentina and Bolivia experienced by Brazil and Chile is due to the general political orientation of Argentina and Bolivia, whose governments massively interfere in the economy. Brazil's PT also adheres to state interventionism, albeit to a lesser extent than in Argentina, Bolivia and Venezuela.

[8] Concentrating on domestic resources may prove an unsound strategy though. The exploration of Brazil's offshore oil and natural gas fields has, so far, led to poor results. Given that the government has mandated Petrobras to acquire a minimum share in new pre-salt fields of 30 percent, the company has had to downscale its much more lucrative projects in Africa and Latin America.

[9] Less dramatic but similar issues hamper intraregional transport of goods by road: Argentina limits Brazil-Chile shipments to a single route across its territory, which is significantly longer than the shortest route. In December 2003, the Argentinian government banned Uruguayan trucks from crossing its territory on the way to Paraguay.

While market oriented Chile, Colombia and Peru have signed free trade agreements with the world's major economies, the Mercosur only has trade agreements with Egypt, Israel and Palestine, i.e. partnerships that hold a certain symbolic political value but are economically irrelevant. Its prospects of striking a deal with the European Union are dim. Furthermore, in 2012 Chile, Colombia and Peru plus Mexico launched the Pacific Alliance, a trade bloc that aims at free trade of goods and services, and seeks to speed up and protect investment from overseas. This bloc pulls three major South American countries further away from the Brazilian-dominated Mercosur and reinforces their global orientation. In a striking consistency with locational and physio-geographical conditions, Brazil's economic influence would then remain limited to its pre-Andean neighbors, potentially including Venezuela.

Conclusion

Our analysis of geographical and political conditions has shown that Brazil's geoeconomic nodality is severely limited, and so are the prospects of regional integration. Distance and physio-geographical barriers separate Brazil from the Andean countries, Guyana, Suriname and Venezuela. Although Amazonian and Andean road corridors and waterways are to be rehabilitated in the context of IIRSA, it appears unlikely – at best uncertain – that these projects will soon become reality. Contrariwise, Brazil's role as a geoeconomic node for the Southern Cone countries is eased by location and physical geography. Brazil's core zone of population and economic activity, mainly the states of Rio de Janeiro and São Paulo, are relatively close to Argentina, Paraguay and Uruguay. The terrain is plain and rivers can be used for transport. Road infrastructure in the Southern Cone is comparatively dense. Yet, Brazil is rather pulled toward maritime than continental trade because its economic activity is concentrated on a coastal strip that is separated from the hinterland by the rugged Brazilian Highlands. Transport by container vessels to West Africa is easier for a company located in São Paulo than rail or road transport to any South American country, including the Southern Cone.

Energy resources provide a potential for cooperation with Argentina and Bolivia, and, excluding distance and physio-geographical barriers, also with Colombia, Ecuador and Venezuela. However, apart from energy and automobiles, economic complementarity among South American countries is low. Exports of primary-sector products to Europe, North America and the Far East matter more than intraregional trade. Especially in the case of Brazil, the latter contributes only a marginal share to GDP. Even though the internationalization of large Brazilian enterprises has a South America bias, which is reinforced by measures of the BNDES that facilitate their regional expansion, there are major political constraints to Brazil's role as a geoeconomic node. Government interference in the economy in Argentina and Bolivia has demonstrated that relying on neighboring countries as providers of key resources can be risky – this is why Brazil pushes for energy autarky. Efforts to overcome non-tariff barriers such as double taxation and fluctuating exchange rates have come to a standstill. The Pacific Alliance constitutes an economic bloc that pulls Chile, Colombia and Peru further toward the United States and the Far East – thus away from Brazil. Although more investigation on this matter is needed, it appears that Brazil's economic expansion has not generated regional commodity chains.

Our findings constitute a counterweight to the sometimes overly optimist statements by state authorities and intergovernmental organizations. A pessimist reading of this article would be wrong though. South America does hold a strategic relevance for the development of Brazil's economy: as Table 3 shows, almost 75 percent of Brazil's exports to the region are secondary-sector products, which is 40 percent more than the according share in Brazil's total exports. The value of Brazilian manufactured exports to South America increased from USD 18 billion in 2005 to 34 billion in 2011. It was only USD eight billion in 1995 (IADB 2013). Hence, some may argue that an export-led industrialization of Brazil depends on more trade with South America. Brazil's current deindustrialization results from its integration into global trade as a supplier of unprocessed resources. Apart from that, one can make a case for a stronger Brazilian commitment to IIRSA, as it would also facilitate trade with the Far East. Given that, in addition to considerable distances, container vessels have to go through the congested Panama Channel, navigate around stormy Tierra del Fuego, or pass the insecure Strait

of Malacca, transregional corridors that connect Rio de Janeiro and São Paulo to ports at the Pacific Ocean should be relevant to Brazil. Thus, physical integration in some parts of South America may eventually be driven by Brazilian-Asian trade.

Lastly, analyzing regional integration among developing states carries the risk of comparing projects such as Mercosur, the Economic Community of West African States (ECOWAS), the South Asian Association for Regional Cooperation (SAARC) or the Southern African Development Community (SADC) to regional integration in Europe. Given the different histories of intraregional economic relations, and the relatively small and less developed markets in most countries of the former Third World, such a comparison is far too demanding. Regional integration among developing countries is, at least presently, about guaranteeing basic physical conditions that improve connectivity and foster greater regional interdependence.

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